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Armed Services Committee

Sea Power Subcommittee

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SENATE ARMED SERVICES COMMITTEE
SEA POWER SUBCOMMITTEE

Opening Remarks

Mr. Chairman and members of the committee, thank you for requesting this hearing. I am Mike Toner, Executive Vice President of General Dynamics Corporation Marine Systems. It is a true privilege to be here today, representing the shipbuilders of General Dynamics Marine Systems.

I want to speak with you today not only as an industry executive, but also in the role that I am particularly comfortable with - and that I am most proud of - an American shipbuilder. I know this business, and I know it well. I know what it takes to be successful, and I know how fragile success can be. There are critical issues before us today regarding the health and future of the Navy's shipbuilding industrial base. I hope that my 40 years experience as a shipbuilder will help bring a better understanding of the issues that will impact our nation's continued ability to design and build both commercial and naval warships. This ability is a true national asset, a legacy capability that could be lost if it is not continually exercised and advanced with modern design and construction technology.

Over the last fourteen years, three of my predecessors at General Dynamics have spoken to Congress on shipbuilding issues. My message today is not very different than it was when they spoke. Our U.S. shipbuilding industrial base produces the most advanced warships in the world, and preservation of this industrial base is essential to our national security. The strength of our industry lies in our people, and the engineering, design, production, and ship technology that they bring to bear in delivering these warships. We are however, an industry that is dependent on U.S. Navy ship procurement plans for our business. Herein lays the risk and fragility of our business. Our fragility is the result of low rate production levels such that minor perturbations in volume have major cost and schedule consequences. It is exacerbated by the uncertainty in our business forecasts caused by continual revisions to the Navy's shipbuilding plans. These factors have a ripple effect on our unique supplier base which in turn further complicates our ability to ensure timely deliveries at contracted price levels.

In the face of these market conditions, General Dynamics' shipyards have continued to look for ways to reduce the costs of our products while ensuring schedule and quality commitments are achieved as well. We have undertaken difficult reengineering initiatives to adjust to the unprecedented low rate production of submarines and surface warships, consolidated operations and facilities, and aggressively attacked overhead costs. At the same time, we have made investments in design tools and systems, and production tools and facilities, with the goal of improving the quality and reducing the cost of our products. We have

done what we could to keep this industry strong. What we cannot do, and what we look to Congress and the Navy for, is to provide program and funding stability. Stability means predictability, and predictability is fundamental to the performance of any successful business. Shipbuilding is certainly no exception. Stability will allow us to more effectively drive out costs by enabling steady, reliable production plans; by allowing suppliers to more effectively plan component manufacturing; and by providing us all - shipbuilders and suppliers - with the confidence to make prudent investments that will improve our efficiency.

We also need Congress and the Navy to continue to explore alternative financing approaches for ship acquisition. Alternative financing approaches may give the Navy budgetary flexibility to sustain their procurement strategy and support their national defense obligations, but the appropriate financing approach will likely vary from program to program. Advance appropriations, multi-year procurements, incremental procurement, split funding and lead ship R&D procurements all potentially offer budget flexibility to the Navy. Most importantly, while alternative financing will not provide more ships, it will provide an added level of stability that is so critical to the industrial base.

Finally, so much of the discussions today are in the context of the Navy's shipbuilding industrial base. Unfortunately, we have lost sight of just how important commercial shipbuilding could be to the strengthening of that industrial base. Today, commercial shipbuilding is a small part of General Dynamics' marine business; it is a much smaller part of this nation's participation in the world market. The U.S. Navy has a vested interest in the revitalization of commercial shipbuilding in America. Congress and the Navy must not confine their thinking to new ways of financing how we buy warships. We need to find new ideas of how shipbuilding, not just naval shipbuilding, can be revitalized in the U.S.

Within the context of the above, I'd like to discuss my three shipyards and their business conditions.

ELECTRIC BOAT

Submarines

There are over 12,000 engineers, designers, and craftsmen at Electric Boat. They build the most complex system in the world today - the nuclear submarine. The U.S. Navy nuclear submarine of today provides a set of capabilities unmatched by any other military platform. That complexity is embodied by five critical characteristics:

Nuclear Power: For perspective on the extent to which we build safety into the nuclear propulsion plants, deployed submarine sailors--who sleep, eat and work within yards of the reactor, whose fresh water and fresh air are made with energy from the reactor--receive less total radiation exposure each year than the average U.S. citizen gets from natural background sources.

Quieting: Today's VIRGINIA Class submarine at full speed is, in fact, generally quieter than the background ocean. Our submarines are about 300 times quieter than a commercial cruise liner.

Shock: The nuclear submarine has much in common with the space shuttle, both send people and technologically sophisticated vessels into an unforgiving environment. A nuclear submarine is also designed to go into combat. Not only must the submarine be able to operate flawlessly within the ocean depths; the ship must also be able to withstand the rigors imposed in an underwater combat shock environment.

Design Tolerances: Because of the density of submarine equipment and components, and critical alignment of that equipment, nuclear submarine construction must be done to exacting tolerances. Critical equipment must continue to operate even when the "as built" construction tolerances are further challenged when the ship goes deeper and the external pressure from the sea causes critical alignments to change as operating conditions change.

Subsafe: One of the most tragic lessons we have learned in the submarine industry was the loss of the U.S.S Thresher in 1963. As a result of that casualty, the Subsafe program was established to provide assurance that materials and processes used in critical applications were of the highest quality and can

withstand the enormous pressures of deep submergence. Over 12,000 pieces of material and over 10,000 welds are Subsafe certified on each nuclear submarine. The recent incident with the U.S.S San Francisco is truly a testament to the value of our Quality program. In light of the death and injuries, it is easy to overlook the fact that the quality of design and workmanship allowed the ship to not only survive, but also to return to port under its own power.

Programs

VIRGINIA

The VIRGINIA Class submarine was designed by Electric Boat Corporation. It is the latest class of advanced capability fast attack submarines to be designed and delivered to the United States Navy. From its inception, the challenge of the VIRGINIA Program was to find the optimum balance between capability and affordability.

The VIRGINIA Class has been designed with reconfigurable spaces and features that make it adaptable and responsive to the changing and evolving threat. The VIRGINIA is the first naval combatant to be designed to meet the Post Cold War challenges of a new, uncertain threat environment – those conflicts in the near shore littoral environment. It supports seven critical post Cold War missions: covert intelligence, surveillance and reconnaissance (ISR); anti-submarine warfare; special forces warfare; precision strike warfare; anti-surface ship warfare; mine warfare; and provides support for Joint Forces.

The Design/Build (Integrated Product and Process Development) contract was the first of its type for a DOD Cat 1 acquisition program. At the time of the contract award in January, 1996, Electric Boat, with no precedent to follow, worked hand-in-hand with the Navy and led the development of new tools, processes and procedures, and trained shipyard workforce and oversight organizations to promulgate the required cultural change in the entire submarine enterprise. VIRGINIA literally has raised the performance bar for submarine technology and shipbuilding management and is providing the model for shipbuilding of the future. One indication of our success was when we received the Pentagon's David Packard Award for acquisition excellence. It was the first U.S. Navy warship to be designed using advanced computer-aided design and visualization technology that supports integrated design and manufacturing from a single product model database.

Each ship of the Class is being constructed by both General Dynamics Electric Boat in Groton, Connecticut and Quonset Point, Rhode Island, and by Northrop Grumman Newport News in Newport News, Virginia. Construction is being accomplished under a unique co-production teaming agreement whereby the construction of the ship's 18 major modules has been assigned to respective yards and the delivery of each ship is alternated between each yard. Today, the class design is complete and the program is in low rate production at one ship per year. Electric Boat is the prime contractor for the entire construction program.

The program has experienced cost overruns. However, it is important to view these overruns within the dynamics of an uncertain, low rate production market environment; and to look at the specific causes of these overruns. In 2001, the Navy reported an initial budget shortfall of $1.234B. This shortfall was driven by understated government inflation estimates, the impact of low rate production on shipbuilders and suppliers, and ship requirements growth. More recently, an additional $419M shortfall was driven primarily by complex new lead ship challenges and the reestablishment of dual sources for submarine construction.

On October 12, 2004, EB delivered the lead ship, U.S.S VIRGINIA (SSN774), just 3.5 months from a contract delivery date established over ten years earlier. The lead VIRGINIA, SSN774 was the first EB submarine delivery in 6 years - - and the first lead ship in 7 years. The second ship, SSN775, will be the first NGNN submarine delivery in 8 years – and the first lead ship delivered by them in 28 years.

Seawolf

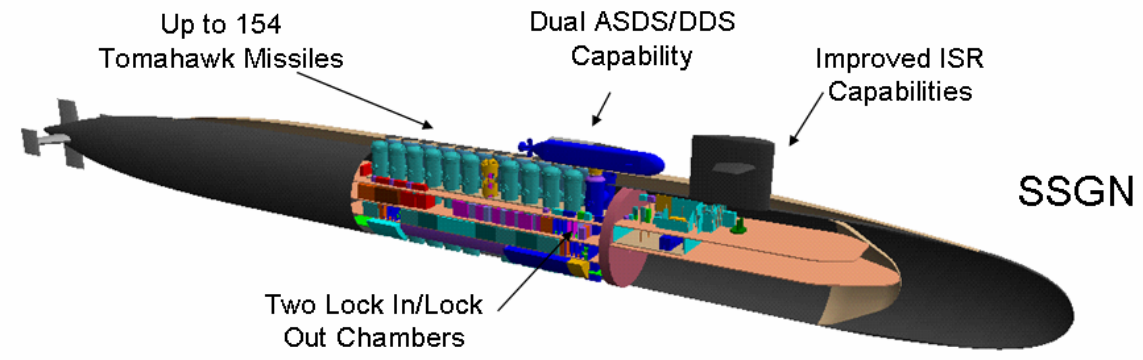
The SEAWOLF Program was designed to counter high performance Soviet submarines at the end of the Cold War. The need for a large number of SEAWOLF Class submarines was obviated by the collapse of the Soviet Union in 1989. Initially planned to be a 30 ship class, the program was reduced to three ships. The U.S.S JIMMY CARTER (SSN23) is the third and final SEAWOLF Class submarine. Following closely on the heels of the delivery of the U.S.S VIRGINIA, U.S.S JIMMY CARTER was delivered to the U.S. Navy on December 22, 2004. This marked the second delivery by Electric Boat in four months.

Differentiating the SSN23 from all other submarines is its Multi-Mission Platform (MMP), which includes a 100-foot, 2500-ton hull section that enhances payload capacity, enabling the ship to accommodate the advanced technology required to develop, test and deploy the next generation of weapons, sensors and undersea vehicles.

SSN23 MMP Design/Build program success has been unprecedented. Key to this success was the ability of experienced design and engineering personnel to role off of VIRGINIA and immediately onto another major design program -- the MMP, a project as complex as the construction of an entire Los Angeles Class submarine. Beginning with a notion that was little more than a Power Point slide, Electric Boat moved from concept design, to completion of detail design in 29 months -- half the time historically needed to advance through this development cycle. Five months later, this unique 2500 ton module was delivered to the Groton shipyard for assembly with the host ship.

SSGN

Electric Boat is also the prime contractor for the conversion of four Trident SSBN submarines to SSGN configuration taking place at the Norfolk Naval Shipyard and at Puget Sound Naval Shipyard. This effort leverages Electric Boat's experience as the designer and sole builder of Trident SSBN submarines. Trident SSGN conversion will provide key capabilities for covert strike and clandestine Special Operations Force (SOF) missions.



The SSGN will provide up to 154 Vertical Launch Weapons from missile tubes previously housing ballistic missiles. Additionally, the SSGN will include an enhanced VIRGINIA Class communications suite and a dedicated command and control space for better mission planning. The platform will also be

modified to host two Special Operating Forces lockout chambers using dual Dry Deck Shelters and/or Advanced SEAL Delivery Vehicles. The reconfigured ship will be able to house 66 SOF personnel and provide a dedicated SOF command and control planning center. SSGN will also function as an experimental test-bed to develop innovative operations concepts and payload/sensor alternatives for incorporation on future submarines. The large missile tubes inherent on this platform provide the volume to demonstrate and deploy non-traditional submarine payloads in an operational environment. The use of SSGN as a test bed for future capability to be included in future undersea systems forms the foundation for the transformation of the submarine force into the future.

Life Cycle Support, Maintenance and Modernization

Electric Boat provides centralized life-cycle support for U.S. Navy submarines and submersibles via an experienced design, construction and fleet support organization supporting all classes of submarines. Electric Boat provides on-site fleet support at Kings Bay, Bangor, Norfolk, Puget Sound, Groton and Portsmouth and fly away teams at other locations as requested. Support provided includes design, engineering, planning, maintenance, material procurement and installation services that directly support the safe and reliable operation of the U.S. submarine force.

Additionally, in 1998 EB began re-establishing itself as a major depot level submarine maintenance, modernization and repair activity. Supporting that transition has been a robust engagement with NAVSEA, the Naval Shipyards and other field activities in the various initiatives supporting the Navy's ONE SHIPYARD concept. Fundamental to this engagement is Electric Boat's commitment to align its maintenance related processes with those of the Navy. Electric Boat is now performing depot level availabilities including Interim Dry Dockings (IDDs), Selected Restricted Availabilities (SRAs, Depot Modernization Periods (DMPs), and scheduled Pre-Inactivation Restricted Availabilities (PIRAs) of LOS ANGELES and SEAWOLF Class submarines in its Groton shipyard.

The Navy's submarine base in Groton, CT., and Electric Boat, within short commuting distances of each other, work closely together to maintain the Navy's nuclear submarine force. This partnership is significant and can support not only scheduled routine maintenance and modernization, but also emergent or unscheduled work requiring technical expertise, depot level capabilities and a skilled resource-pool to accommodate surge requirements. The complementary SUBASE/EB relationship affords the

Government savings as well as efficiency and skilled resource flexibility, creating a synergy that is critical to the Navy and national defense.

Much of the cost debate for naval ships has been focused on acquisition cost. A truer metric may in fact be total ownership, or total life cycle costs. Nuclear submarines inherently possess low total operating costs due to their minimal manning; and, they require no at-sea logistics train, no protective escorts, and little support infrastructure ashore. Today, technology advancements have led to the development of a life of the ship core, eliminating the need for major refueling overhauls on our attack submarines. On VIRGINIA, crew manning for at-sea operations, one of the key drivers of program life cycle cost, has been reduced by 12% from 134 to 118. In fact, on the VIRGINIA program, there has been a 30% reduction in total ownership cost from previous submarine classes.

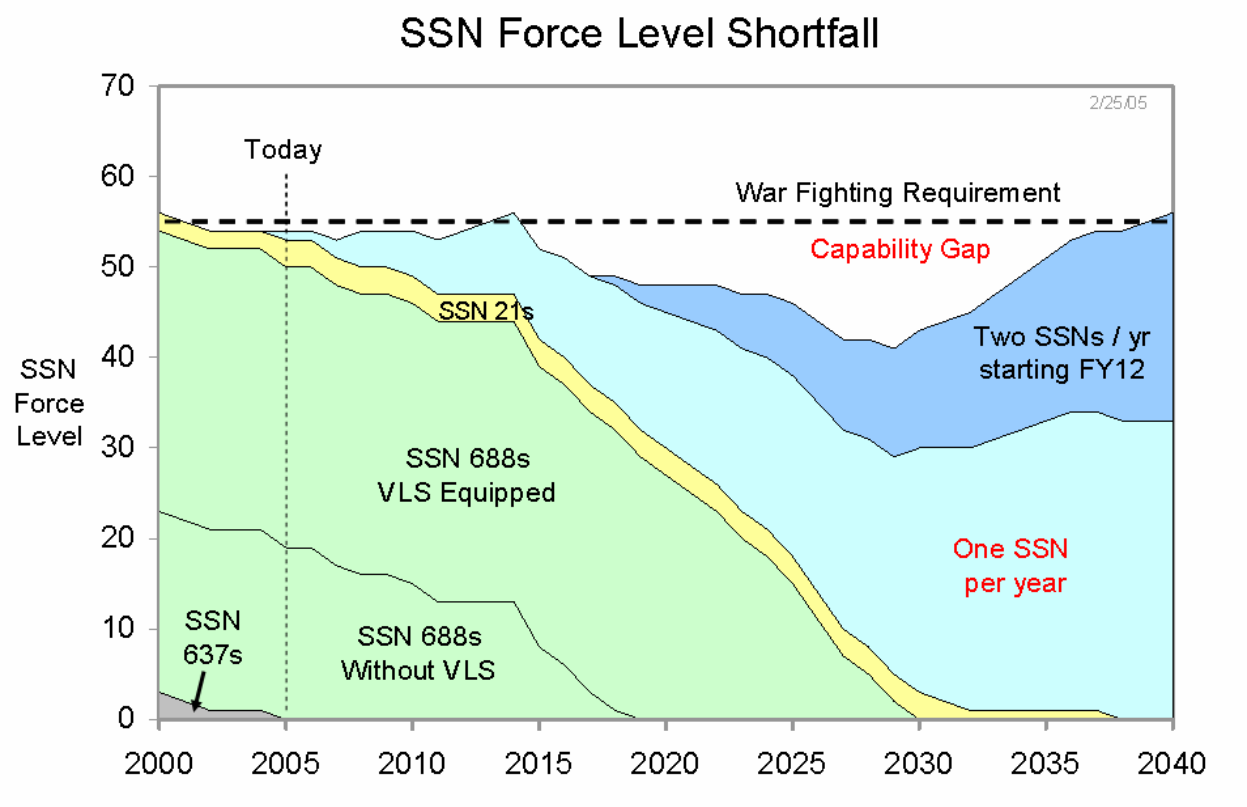
Tango Bravo

The Tango Bravo Program is a collaborative effort between the Defense Advanced Research Projects Agency (DARPA) and the United States Navy to execute a technology demonstration program to break through the "technology barriers" and enable design options for a future submarine. This effort is also aimed at decreasing platform infrastructure and the cost of the design and production of that future ship.

In October 2004, Tango Bravo proposals were sought in five technology demonstration areas: (1) shaftless propulsion, (2) external weapons stow and launch, (3) hull adaptable sonar array, (4) radical ship infrastructure reduction, and (5) reduced crew/automated attack center. Electric Boat was notified in March, 2005, that they had been selected for three Tango Bravo contract awards, subject to successful negotiations. The $600 million programmed in the current Navy plan for an undersea superiority system could be used to advance these technologies and integrate them into a future VIRGINIA, or to start a design effort to produce a lower cost nuclear submarine. Combined, these technologies could lead to a complete re-architect of the submarine for the first time since the Nautilus. This new architecture could remove the constraints in present submarines imposed by the shaft line and torpedo room/torpedo tubes. The initiative also could provide for the insertion of new technologies to ensure submarine relevance in the future threat environment where it will deploy.

Spiral integration of these technologies, such as external weapons, could be developed in parallel with a new forward end. Shaftless propulsion, likewise, could become a design/build effort resulting in a new stern and engine room section. By continuing VIRGINIA production, ships of opportunity will provide an integrating platform.

Several studies have recently been conducted on future fleet architectures. All have recognized the enduring value of submarines for future naval operations. Furthermore, under all known force level scenarios, including the most recent Navy 30-Year Interim Report to Congress, procurement of 2 ships per year will be needed to maintain undersea superiority and replace the aging fleet of LOS ANGELES Class (SSN688 Class) attack submarines as they retire over the next several decades. The 30-Year report neglects to indicate a new SSBN/SSGN design will be needed in the next decade. Absent new design work, the submarine design industrial base will not be around to perform this effort.

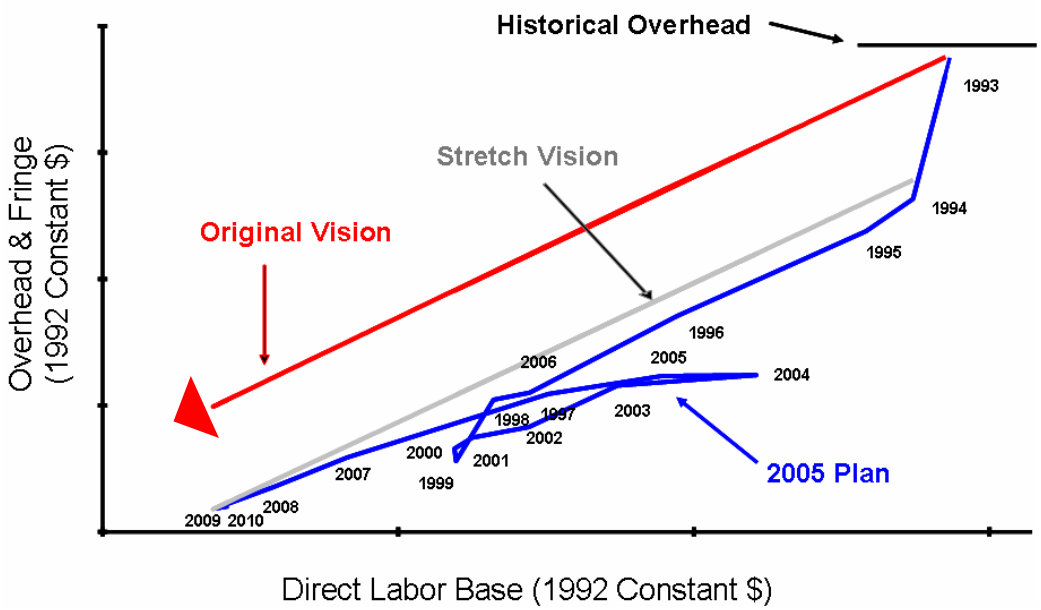


Increasing submarine procurement to 2 ships per year is required to maintain undersea superiority and replace aging Los Angeles Class submarines

Reengineered for Low Rate Production

With the abrupt rescission of the Seawolf program in 1991, Electric Boat was confronted with the challenge of remaining a viable enterprise in the face of a business future where its sole production program had been canceled. Electric Boat responded to this challenge with an immediate and complete reengineering of its business. This was an aggressive plan to ensure successful completion of its backlog of work while positioning the company to remain viable in what was expected to be a dramatically reduced submarine production market. Key objectives were: to be properly sized to meet demand; to utilize "best practices" for all processes and procedures; and to incorporate a culture of world class performance. As a result, Electric Boat has led the industry in shedding excess production capacity, reducing overhead and infrastructure costs, and developing tools and methods to preserve critical skills and capabilities during low rate production.

One of the most critical steps in the reengineering process was changing the historical relationship between overhead costs and direct labor costs. In 1992, at the outset of Electric Boat's reengineering effort, an aggressive, long range, overhead cost reduction target was established for 1998. A plan was laid out that included significant reductions in overhead cost each year. Electric Boat's realization of its goals necessitated identifying key cost areas, breaking each one down into discrete elements, and, most importantly, taking aggressive management actions to minimize these costs. These actions have resulted in actual and projected cost savings of over $2.7B over 1993 through 2010; $1.7B from 1993 – 2004, and $1.0B from 2005 – 2010. Over 95% of those savings have and will accrue to the Government.



Reengineering actions have resulted in actual and projected cost savings of over $2.7B from 1993 – 2010. Over 95% of these savings will go to the Government

Production and Engineering Work Force

The manufacturing, assembly, integration, and test activities carried out at Electric Boat require a highly skilled workforce with a wide variety of critical and unique skills and capabilities. Currently there are over 5,000 trades, supervision, and support personnel involved in the construction, maintenance, and modernization of U.S. Naval nuclear submarines at Electric Boat.

Analysis done in support of the Office of the Deputy Undersecretary of Defense (Industrial Affairs & Installations), Study of the Submarine Industrial Base in 1997, concluded that it takes at least 2 to 3 years for a submarine shipyard mechanic to become minimally proficient and from 5 to 6 years in most trades to achieve relatively "full proficiency." In fact, it was noted that in some critical areas such as testing, where an extensive trade background is a prerequisite, it can take up to 10 years at the yard to become proficient.

The time required for the EB production workforce to become proficient is exacerbated by the uniqueness of some of the skills required to construct nuclear submarines, such as fabrication of heavy-wall pressure hull sections to demanding tolerances, lead bonding and other radiation shielding work, and stringent quality requirements for nuclear and Subsafe work. These skills and abilities must be developed in-house, as they are unavailable elsewhere in the shipbuilding industry or from other manufacturing sectors.

Electric Boat has identified its production workforce critical mass at approximately 3,000 production workers (1,500 in Groton Operations and 1,500 in Quonset Point Operations); it does not include production support personnel. This would be a "minimum efficient level" to sustain an efficient, affordable production trade workforce, as well as retain a balance of critical skills.

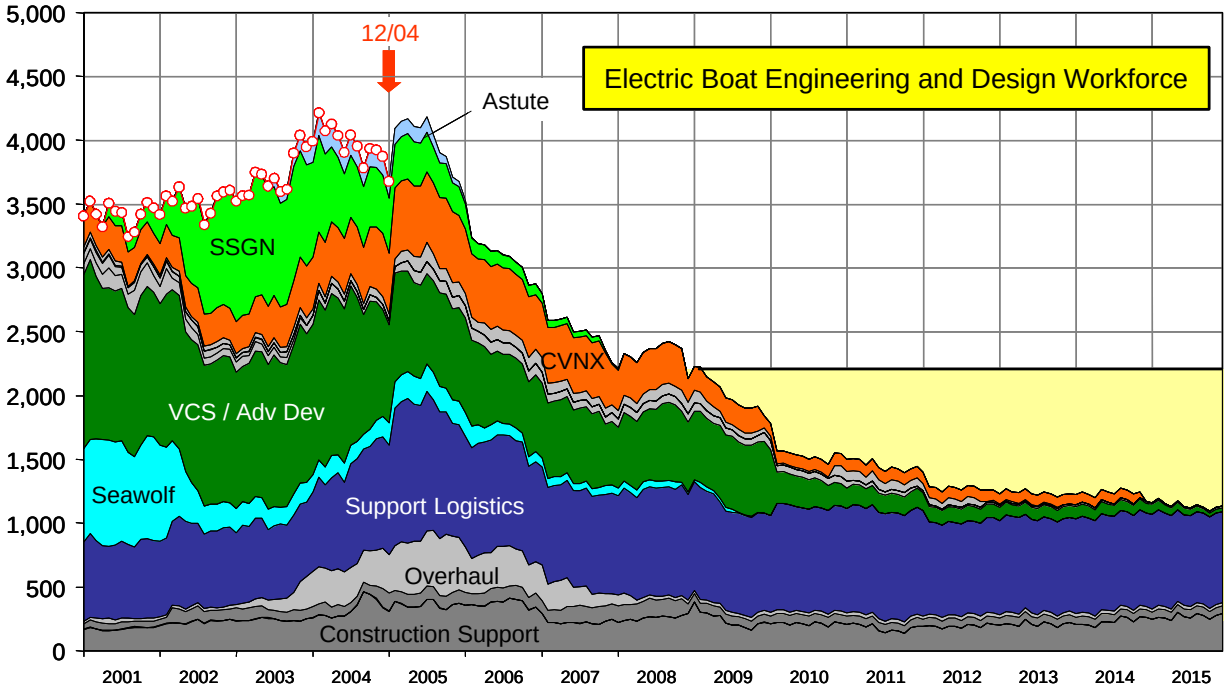
Current VIRGINIA production forecast results in a workload volume that will test our ability to sustain key skills and capabilities. Absent additional new construction volume, submarine maintenance and conversion work allows us to retain an efficient trade workforce. Submarine maintenance and conversion work draws on many of the skills involved in new construction, helping to fill voids in key trades caused by the low rates of production. The added volume also helps to reduce the overall labor cost of new construction by absorbing overhead.

Electric Boat has over 3,000 engineering and design personnel engaged in all facets of submarine design and engineering. This cadre of skilled and experienced personnel represents the core of the U.S. Design Industrial Base for nuclear submarines. Like the production workforce, the engineering and design force encompasses numerous skills and abilities unique to the nuclear submarine environment. Among these unique skills are the acoustic technologies essential to stealth, advanced analytical capabilities in the areas of shock, hydrodynamics, and nuclear propulsion, and submarine systems and components integration.

The Electric Boat engineering and design workforce has not fallen below 2,500 personnel in the last 40 years. Recent studies show that at least 2,200 experienced engineers and designers will be required to retain the capability to do the next full submarine design in a timely and cost-efficient manner.

The current forecast for submarine R&D and new design development places the Electric Boat engineering and design workforce at risk. For the first time since the start of the nuclear submarine program, over 50 years ago, there is no new submarine design planned.

Additional submarine R&D / design efforts are needed in the relatively near future to maintain this base of skilled engineers and designers. It is imperative to move forward with a new class design if the nation is to retain this national security asset.



At least 2,200 experience engineers and designers will be required to retain the ability to perform the next submarine design in a timely and cost-efficient manner.

Navy Shipbuilding Plan – Submarines

Beginning with the SEAWOLF rescission in 1991, the submarine industrial base has been faced with unprecedented, protracted low rate procurement. Although the SEAWOLF decision did not appear at the time to have national security ramifications, that was not the case. The supplier base for nuclear submarines essentially collapsed. The decision had a "chilling effect" on the industries that owned the suppliers and made them price risk into material and components, thus driving up the cost of submarines. Low procurement rate, coupled with continued uncertainty over future program stability, has left the nation's submarine industrial base with a dangerously limited number of suppliers. Today on the

VIRGINIA program, over 83% of the material is supplied by single or sole source suppliers. Over the last ten years, many key suppliers of major equipment and material have left the business, resulting in the number of suppliers going from 11,000 to only 4,500 today. The results are material costs that continue to escalate at rates that place continued pressure on our ability to control unit costs.

The FY2006 Navy shipbuilding plan reflects a procurement rate of 1 submarine per year until FY 2012. Once again we have seen the Navy's plan to increase submarine procurement to 2 ships per year delayed; this time by three years from FY 09 to FY12. This is the 12th change to the VIRGINIA procurement plan in ten years. Over this time, the forecast for nuclear submarines has been reduced by almost 40%, a reduction from 24 ships to 15 over the 1998 – 2012 time frames. This is estimated to be a reduction of about $20B to our single product market.

	98	99	00	01	02	03	04	05	06	07	08	09	10	11	12	TOTAL
DEC 95	1	0	1	0	2	2	2	2	2	2	2	2	2	2	2	24
DEC 96	1	1	0	1	1	0	1	2	2	2	2	2	2	2	3	22
NOV 97	1	1	0	1	1	0	1	2	2	2	3	3	2	3	2	24
FEB 98	1	1	0	1	1	0	1	2	2	2	3	3	2	3	2	24
OCT 98	1	1	0	1	1	0	1	1	2	2	3	3	3	3	2	24
MAR 99	1	1	0	1	1	1	1	1	2	2	3	3	2	3	2	24
JUN 00	1	1	0	1	1	1	1	1	1	2	2	3	3	2	3	23
JUN 01	1	1	0	1	1	1	1	1	1	2	2	3	2	2	3	22
APR 02	1	1	0	1	1	1	1	1	1	1	2	2	2	2	3	20
MAY 03	1	1	0	1	1	1	1	1	1	2	2	2	2	2	3	21
MAR 04	1	1	0	1	1	1	1	1	1	1	1	2	2	2	2	18
JAN 05	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	15

Navy FY06 shipbuilding plan delays increase to 2 ships / year from FY09 to FY12. This is the 12th change to the VIRGINIA procurement plan in 10 years.

Despite low procurement volume and uncertainty over future plans, the shipbuilders and suppliers continue to strive to reduce the cost of nuclear submarines. Most significantly, with help from Congress, the six ship, Block II procurement of VIRGINIA ships was awarded under a multi-year contract, with Economic Order Quantity and funding. This acquisition strategy will allow the shipbuilders and suppliers to achieve a significant reduction in material costs that would not have been achievable under more typical single ship contracts.

The submarine industrial base is not only dealing with the issue of a minimum level of ship procurement, but for the first time in over forty years, there are no new submarine designs being developed. Similar to the production industrial base, the submarine engineering and design industrial base is a highly specialized, unique capability, with no commercial counterpart. It is a capability that takes years to develop and must stay actively engaged in submarine design to retain its viability.

A vivid example of the impact that procurement instability can have on a nation's shipbuilding capability can be seen in the depletion of the UK's submarine design and construction capability. Erosion of the UK's submarine industrial base was caused by reductions in defense spending that led to an extended gap between designs and low submarine production rates. This resulted in the closure of a shipyard, major job losses, and the loss of "corporate knowledge" as experienced personnel shifted to other industries.

The UK has experienced significant problems in executing their new submarine design program - Astute - as a result of their eroded capability. With their submarine engineering and design capability effectively disbanded they must accomplish their new design using other industry engineers and designers. This approach has yielded a design that has required numerous changes and a program that is over budget and behind schedule. At the UK's request the U.S. Navy has tasked Electric Boat to assist in design and management support services to meet resource shortfalls of the UK's current submarine industrial base.

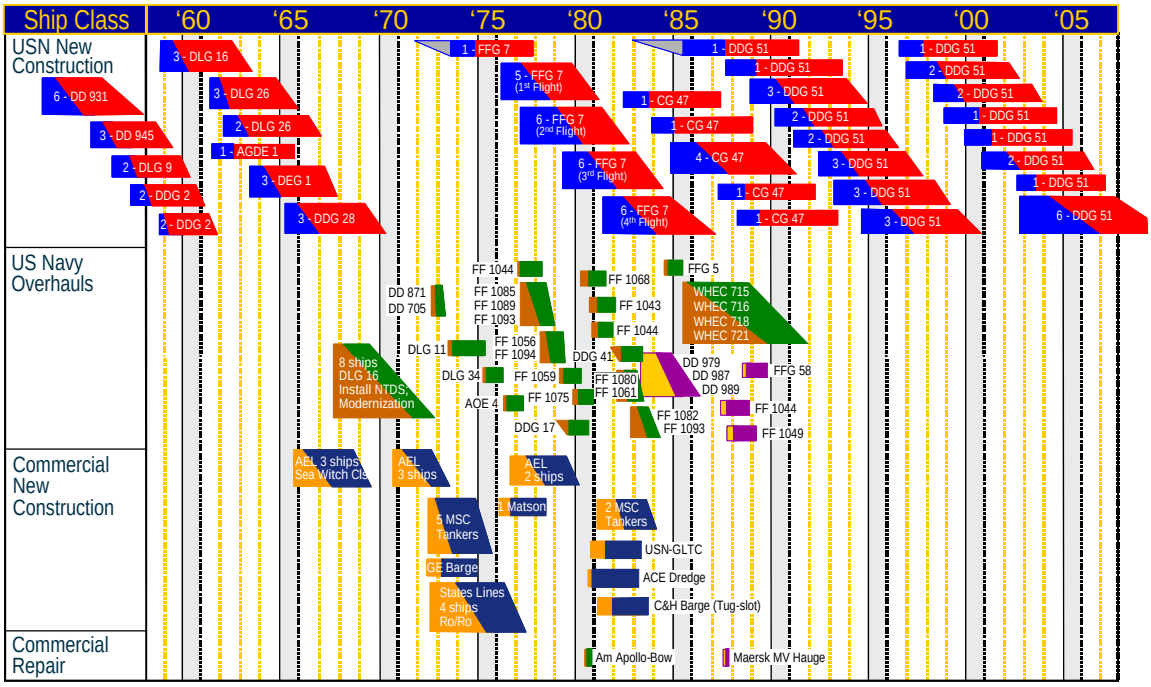
The rapid and costly depletion of the UK's submarine design and construction capability has elements that are strikingly similar to those now faced by the United State's submarine industrial base. We could face the same dilemma as the UK if development funding for submarines is cut. The U.S. "corporate knowledge" base is at risk, and if reconstitution becomes necessary, there will be no comparable assistance available. Learning from the UK's experience and proceeding with a submarine procurement plan that provides predictability and production rate stability is critical to our nation's defense.

BATH IRON WORKS

Surface Combatants

The name Bath Iron Works has been synonymous with U.S. Navy surface combatants since the closing decade of the 19th century. BIW's first U.S. Navy warship; USS MACHIAS was delivered and commissioned on July 20, 1893, and since then over 230 Bath-built ships have served America's Fleet in defense of our nation. BIW delivered 89 ships to the U.S. Navy during WW II, averaging one destroyer every 17 days during the peak production years of 1943-1944.

Since World War II, BIW has designed and built the lead ship for 11 of the 20 new, non-nuclear surface combatant classes procured by the U.S. Navy. As the designer and lead ship builder of the DDG 51 Class BIW has been at the leading edge of the integration for Aegis and guided-missile weapons technology delivering 24 DDGs since the fall of the Berlin wall.



BIW will build 34 of 62 DDG 51 Class Ships before construction completes in 2010. From 1965 – 1985 commercial shipbuilding was a key component of BIW's business.

Programs

DDG 51

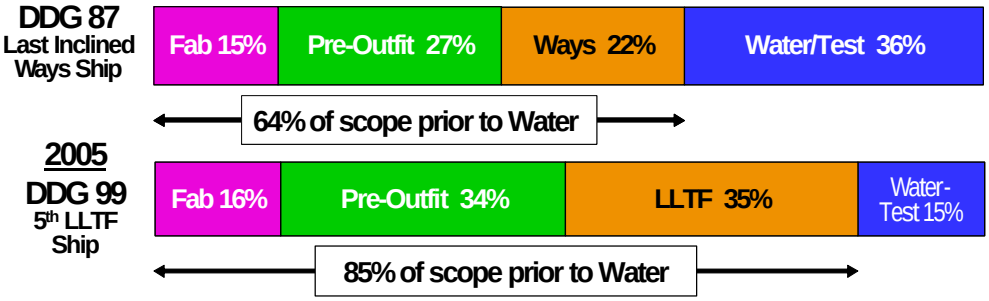
BIW is currently constructing DDG 51 class destroyers and will deliver 10 more of these ships before construction concludes with DDG 112. Ultimately, BIW will build 34 of the 62 ships in the DDG 51 Class before construction completes in 2010 making the DDGs the largest post-WWII Class of Navy ships. Each one of these highly complex, technological marvels is packed full of equipment and brought to life by more than 48 miles of pipe and 254 miles of cabling, roughly the distance from one end of Maine to the other, in a ship that is 50 feet shorter than the Washington Monument. Each ship is unique and more capable than its predecessor as new technologies are introduced and improvements are made. As the lead shipbuilder and design agent for the class, BIW has been responsible for the introduction of many of these innovations to the Navy fleet including, dramatic radar cross section signature reductions, shipboard integration and testing of combat and sensor systems from multiple vendors, and multiple ship-wide capability upgrades. Most significant of these was the Flight IIA redesign, essentially a lead ship since more than 75% of the construction drawings were modified. As the planning yard for the DDG Class, BIW supported the Operational Navy after the terrorist attack on the USS COLE by sending engineers with wearable computers directly linked to BIW's Surface Ship Support Center to assist damage control and transport operations in Yemen within 48 hours of the attack.

First Flight IIA Ship: USS OSCAR AUSTIN DDG 79

Performance by the men and women of BIW has provided significant cost and schedule improvements over the twenty plus years of the DDG 51 Program. This sustained focus on performance improvements

has allowed the cost of an hour of labor in Maine to remain affordable to the United States Navy. Broadly, over the last three DDGs, the engineering and support hours have been reduced by more than 20% and the manufacturing hours have been reduced by over 9% per ship. These improvements are attributable to front-loaded work scope, reduced schedule durations and local innovations.

Since the conversion from traditional inclined building ways to the Land Level Transfer Facility, BIW has made a concerted effort to move work scope to earlier, more efficient stages of construction where access to equipment is less congested and support services are more readily available. As shown in the bar charts below, the work to be completed during the water-borne period, which is the least efficient stage of construction, has been reduced from 36% to only 15%. Associated process improvements have enabled an 11% reduction in the hours required to complete the most complex outfitting aboard the ship. Further, the overall ship construction duration has been reduced by 30% since BIW began building ships on its Land Level Transfer Facility of which the water-borne duration has been reduced by 62%.

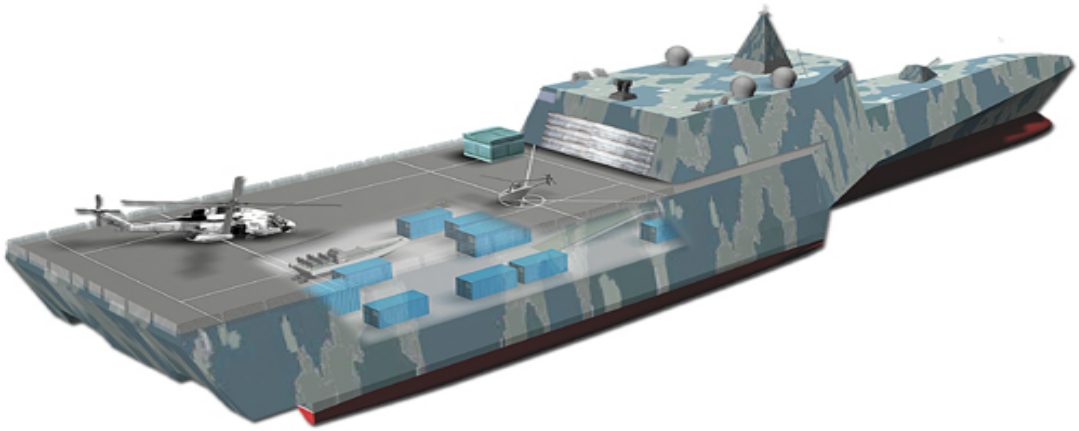


BIW Land Level Transfer Facility has allowed water-borne work – the least efficient stage of construction – to be reduced from 36% to 15% of ship construction.

In addition to planning and scheduling driven improvements, the innovative spirit of BIW's skilled mechanics and managers has generated great benefits. Some of BIW's surface combatant "firsts" include: "lighting-off" the Aegis combat system and the ship's generators before launch; aligning the main propulsion power train before it is water-borne; using photogrammetry, a technology principally developed for surveyors and cartographers, to aid in equipment and structural alignment; and DDG 94, our most recent ship, delivered after only a one day sea trial.

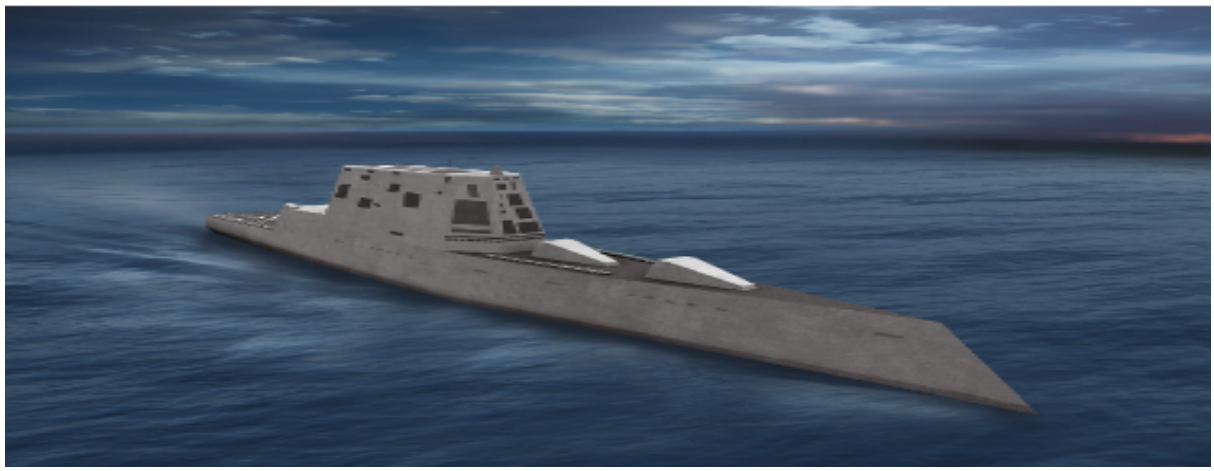
Littoral Combat Ship

In response to the Navy's evolving requirements for transformational platforms to combat emerging threats, Bath Iron Works is leading a multinational team in the Final Systems Design phase of the Littoral Combat Ship program. The General Dynamics LCS Team concept couples fully integrated open architecture information systems with an innovative high-speed trimaran hull form to deliver maximum war fighting capability. With its superior capacity to carry combat payload volume and weight, excellent seaway performance and exceptional aviation capability, the General Dynamics' LCS is a flexible, agile and lethal solution for the Navy's needs today and for the Joint Operational Concepts of tomorrow.



Conceptual View of the GD LCS

Joint Sea Basing will be a critical element of our future national defense strategy. A General Dynamics Team lead by Bath Iron Works is investigating the requirements for Sea Base implementation. In close collaboration with all military services, we are developing a new joint force concept of operations, identifying technology development needs, and designing two concept ships. These ships, together with the high speed and versatility of the General Dynamics LCS, can meet all future Joint Sea Basing requirements and deliver a capability that is tailorable, scalable, persistent and affordable.



Conceptual View of the DD(X) Future Surface Combatant

Workforce and Facilities

The 6,300 employees at Bath Iron Works are skilled craftspeople producing a sophisticated, complex product in support of our U.S. Navy customer. The specialized nature of the product demands design and construction skills that are not readily found in other industries. Shipbuilding is a labor intensive business that also necessitates significant investments in time and money to develop and maintain a proficient workforce. Each skilled shipyard mechanic requires approximately five years to gain full proficiency at a training cost of $50 thousand dollars. Similarly, each engineer and designer requires an investment of three years and $60-$90 thousand dollars. These skilled and innovative craftspeople are vital to maintaining a national shipbuilding competence.

In response to the evolving Navy priorities, programmatic instabilities, and diminished build-rates, General Dynamics has implemented aggressive business restructuring efforts to appropriately size its shipyards and gain efficiencies. In the late 1990's, General Dynamics, in cooperation with the state of Maine and the city of Bath, invested over $300M in a state-of-the-art Land Level Transfer Facility at Bath Iron Works to radically improve the shipbuilding process. This flexible, world-class facility was sized appropriately for the Navy's PB'99 projected surface combatant plan; and supported the Navy's stated desire to maintain two sources of supply for surface combatants.

Off-site Support Facilities:
1. Hardings Structural Fabrication Facility
2. East Brunswick Manufacturing Facility (Pipe Shop & Sheet Metal Shop)
3. Consolidated Warehouse Facility
4. Surface Ship Support Center
5. Church Road Office Facility (Technical)

6. Production Shops
7. Erection Plattens
8. Blast & Paint Facility
9. Small Assembly Building
10. Panel Line
11. Aluminum Shop
12. Main Assembly Building
13. Pre-Outfit II Building
14. Land Level Transfer Facility
15. Ship Way #1
16. Ship Way #2
17. Ship Way #3
18. Floating Dry Dock
19. Dry Dock Landing Grid #1
20. Dry Dock Landing Grid #2
21. Dry Dock Landing Grid #3
22.-25. Outfitting Piers
26. Manufacturing Support Center
27. Engineering Building
28. Main Office & Administration Buildings

Key:
Fabrication
Pre-Outfit
LLTF
Ships Completion
Other

General Dynamics, in cooperation with the state of Maine and the city of Bath, invested over $300M in a state-of-the-art Land Level Transfer Facility to radically improve the shipbuilding process.

Navy Shipbuilding Plan – Surface Combatants

Predictability is fundamental to the functioning of any successful business; shipbuilding is no exception. Key business decisions related to facility modernizations and the retention and enrichment of critical shipbuilding skills must be made years in advance of when they are required and must be predicated on reliable workload forecasts. Absent a predictable plan, the industrial base can not fully leverage its capabilities and competencies to provide the Navy with the most affordable ships possible. Unfortunately, the desired stability has been lacking from the Navy's recent acquisition plans.

The Quadrennial Defense Review is one manner of justification for Navy ship acquisition plans. Completed in 1997, the current Administration endorsed this plan by incorporating the same Fleet requirements in 2001, calling for a 300+ ship Fleet. In most basic terms, sustaining a 300 ship Navy requires building an average of 10 ships/year; however, the steady-state build-rate has been 6 or less since

1993. PB'06 further diminishes the build-rate – in PB'04, 12 DD(X)s were planned over the duration of the FYDP, but in just two years this total has been reduced to only five ships over the same time span in the currently proposed budget.

Over the past decade, industry has invested heavily in several programs that were ultimately canceled with no chance to see a return on the investment, including Arsenal ship, JCC(X), and the SC 21/DD 21 programs, the progenitors of the current DD(X). Similarly, General Dynamics cooperated to the maximum extent possible with the Navy-initiated LPD-DDG swap. The Corporation understood and supported the Navy's clear need to maximize the overall management, technical and financial stability of the LPD 17 Program by consolidating all private sector responsibilities under a single business entity. The survival of the program was at risk; bold actions were essential and it was implicit that the "swap" process could not - would not – balance all business/financial issues. Knowing that such inequities existed did not prevent General Dynamics from acting in the best interest of the Navy to achieve budgetary control of the LPD 17 Program. At the time, this appeared to be done to our own near-term disadvantage, albeit with assurances of longer-term stability in Navy combatant new construction programs. However, recent Navy actions/proposed actions on the DD(X) Program appear to be in direct conflict with these assurances.

Under the leadership of the U.S. Navy, the DD 21/DD(X) Programs have been structured from the outset to incorporate the integrated and cooperative efforts of the two U.S. surface combatant shipyards across all program phases, from Functional Design to Detail Design and ship construction. The underlying business premise, which has enabled a consistent focus on full cooperation, not isolated competition, has been that the ship construction program would be shared equally by the two shipyards. This integrated approach, applied consistently since 1998, was designed to ensure that the DD(X) is the beneficiary of the best ideas, cumulative lessons-learned and most innovative manufacturing practices that U.S. industry has to offer. BIW has been cooperating fully with the Navy's directions in all areas, openly sharing design expertise and manufacturing best-practices with our primary competitor, NGSS-Ingalls Shipbuilding. Given this consistent emphasis on process integration and open cooperation, General Dynamics finds the Navy's recent announcement of a winner-take-all competition at this late stage in the program, after over seven years of development, to be confusing, contradictory and very disturbing. A dangerous parallel

exists today with DD(X) and Seawolf. Just as the Seawolf decision had unforeseen national security implications, so too does the DD(X) decision.

The reasoning provided by the Navy for their unilateral proposal of a "winner take all" competition was in reducing the number of DD(X) ships to be built over the next several years, the costs of two sources of supply for these ships could no longer be justified. Since it remains the Navy's intention to buy at least 10 DD(X) warships, an alternative approach would be to ask industry the simple question: "what is driving the cost of this ship and under these circumstances what can you do to reduce the cost of the DD(X) program?"

After thinking about this I offer the following. The DD(X) operational requirements drive an unprecedented number of new technologies brought to bear simultaneously on the first ship. While the need for these advances in capability is unambiguous, from a practical standpoint both cost and risk are dramatically increased. These requirements were developed from an evolving document dating back nearly a decade. During this time the prime threat to the United States shifted from a major sea-power to an expanded list now including the war on terror and weapons of mass destruction. Clearly this ship must be capable against today's lower probability threat – an emerging sea power – but the path to meeting that threat should be considered as an evolutionary, affordable one rather than all capability on the first DD(X).

I would suggest that the 5 ships in the FYDP be delivered in a spiral development manner. The first ship would include those revolutionary technologies that are just too expensive to backfit or forward fit into later hulls. The tumblehome hull form, the revolutionary electric drive propulsion system, and the appropriate level of capability in the combat system are examples of things that would remain on the first and all following ships.

Some things should be rethought regarding the basic need for them when considering the threat that has evolved and viable alternatives with lower risk and cost. An example here might be to review the composite deckhouse and hanger. I would see if other material could meet all or most of the needs for the ship but reduce the manufacturing risks of this revolutionary technology – at least in modules of this magnitude. This would be a decision that would affect all or most of the ships in the DD(X) program.

Spiral development of technology and warfighting capability is a third method of attack – in this case capability that could be affordably added later. An example here is over the first 5 ships sequentially starting with the ASW component, add mine countermeasure capability later, and use signature reduction techniques in a spiral fashion after validating the requirement over time for this enhancement.

Today, BIW is preparing for low rate production, by working to further reduce its overhead structures and innovatively exploiting its existing facilities. Bath Iron Works believes that it can best serve its Navy customer by remaining a modestly-sized, yet nimble shipyard that can provide a unique, highly-complex, sophisticated product while leveraging appropriate resources from across General Dynamics. In light of the near-term instability of the Navy's overall acquisition plans, it appears that the DD(X) will be a low-rate production program and BIW has factored this expectation into its ongoing efforts to rationalize design and manufacturing cost structures and facility/resource loading plans.

NASSCO

Business Overview

National Steel and Shipbuilding Company, NASSCO, in San Diego has been designing and building ships for almost 50 years, and is the only remaining private shipyard on the west coast capable of building large, ocean-going vessels. NASSCO, with its 4200 engineers, designers, and skilled, shipbuilding craftsmen is the largest industrial manufacturer in the San Diego area and is a strategic resource to both the Navy and Southern California.

NASSCO specializes in commercial cargo ships and Navy auxiliary and underway replenishment ships, as well as Navy repair and maintenance. In the last five years, NASSCO has completed the design of three first-of-class ships, two for U.S. commercial operators and one for the Navy.

One quarter of NASSCO's business activity is devoted to maintenance and repair of the Navy's fleet home ported in San Diego. NASSCO, working together with the Navy has developed the most effective mode of Navy maintenance in the country.

Importantly, NASSCO, with its well-developed new construction capability, is the only private shipyard on the west coast that can perform major battle damage repair or major structural modifications to Navy ships.

Programs

T-AKE

The T-AKE 1 *Lewis and Clark* class dry/cargo and ammunition ship is the latest in NASSCO's long line of Navy auxiliary ships. It is the first new underway replenishment ship design in more than twenty years. NASSCO has eight T-AKE's under contract with options for up to an additional four. Using computer modeling and simulation design tools and proven off-the-shelf state of the art commercial marine systems, NASSCO's T-AKE design incorporates a highly efficient cargo handling system and a

low life-cycle-cost electric drive propulsion system. The first two ships are now under construction. The *Lewis and Clark* lead ship will launch on May 21st and will deliver in early 2006.

Commercial - TOTE

Two new commercial RO/RO trailerships, which feature a diesel-electric propulsion system, were delivered to Tacoma Washington based Totem Enterprises in 2003 and are providing service between Alaska and the lower 48 states. These ships were designed specifically for the rigors of the Gulf of Alaska, and have received many awards for their environmental protection features.

Commercial – BP Tankers

NASSCO has built more of the country's commercial oil tankers than any other shipyard today. Currently NASSCO has a series of double-hull Suezmax crude carriers, also with diesel-electric propulsion, under construction for BP. These ships are designed with a 50-year hull life and are the most environmentally friendly tankers ever designed and built. The first two ships are already in service transporting crude oil between Valdez, Alaska, and BP's west coast refineries. The final two ships will deliver by third quarter 2006.

Underway Replenishment and Strategic Sealift

For the Navy, NASSCO is a leading builder of underway replenishment and strategic sealift ships. From the AFS combat stores ships to the AOE gas-turbine-powered carrier strike group combat support ships, from T-AKR Maritime Prepositioning to the LMSR large medium speed roll-on/roll-off sealift ships, NASSCO-built ships are an essential element of the Navy's ability to operate throughout all regions of the world, independent of shore-based support. NASSCO's considerable experience in each of the Navy's past combat logistic ship and sealift ship program design and production ideally positions NASSCO to be a principal contributor on the Navy's forthcoming Sea Basing program.

Workforce and Facilities

While NASSCO's three new ship classes were making their way through the shipyard in the last three years, GD made a significant investment of more than $130 million in upgrading many of NASSCO's production facilities to world class levels. Although we saw some benefit from these new facilities on the TOTE and BP ships, the real beneficiary is the Navy's new, T-AKE dry cargo/ammunition ships.

Despite this sizable investment in new facilities, NASSCO's experience on its recent commercial programs has not met our expectations for improved efficiencies. There are a number of very relevant observations that I offer to this committee as a result of this experience at NASSCO that reinforce my own conclusions after 40 years in this industry:

First, an investment in shipyard shipbuilding technology and facilities does not in itself guarantee improved productivity and competitiveness. It is steady continuous volume with repeatable product designs that is the most important element for improving shipyard efficiency. We see this clearly in benchmarking our production rates and planning processes against leading commercial shipbuilders around the world, all of whom deliver between 10 and 60 ships per year. In contrast, NASSCO's all-time peak output was seven ships way back in 1971. In today's market place, we produce only two or three ships per year.

Second, production rates must be stable and predictable. When NASSCO started construction on its TOTE new buildings, its work force had by then declined from a high of 5100 employees in 1995 to 2800 in mid-2001 as it was winding down production on the very successful Navy sealift ship program and awaiting the T-AKE contract to be awarded. To ramp up production for the TOTE ships, NASSCO had to hire and train more than 1000 new production employees at a significant recruitment and training cost, plus lower productivity from these inexperienced personnel.

Commercial Shipbuilding

Prior to 1981, the U.S. had a robust commercial shipbuilding industry. For the period 1976 through 1980, U.S shipyards had an average of 61 commercial ships under construction. Shipbuilding, however, has always been a global market and an intensely competitive one. It has always been an industry in which

governments have actively supported their domestic industry. This was true in the U.S. as well. However, in 1981, our government made a conscious decision to stop providing the financial support necessary for U.S. shipyards to compete in the heavily subsidized international commercial shipbuilding market. The U.S. was going to set an example to the rest of the world, in the hope that other governments would also eliminate their subsidies to shipbuilding and provide a more level playing field for our shipyards.

Today, unfortunately, foreign yards are still heavily subsidized by their governments in various ways led by Japan, Korea, and most recently China. Over the last almost 25 years, U.S. foreign trade has grown to 1.2 billion metric tons a year, a 50 % increase. Yet, we, the world's largest trading nation, now have a U.S. flag merchant marine of 234 ships carrying an anemic 2 % of our foreign trade. More important from my perspective, very few of the U.S. flag ships operating in our foreign trade were U.S. built. In 2004, U.S. shipyards had only 7 commercial ships on order, all for the domestic coastal trade, not foreign trade, which represents a paltry 0.3% share of the world market.

It is not that U.S yards lack experience building commercial ships. U.S. yards have built cruise ships, LNG ships, RO/ROs, container ships, crude and product tankers, etc. In fact, five of our nation's six largest shipyards have a heritage rich in building commercial ships. We are not in this market today because 25 years ago we lost the support of our elected officials and ceded the international commercial market to foreign shipyards. U.S. yards instead focused on building ships for the U.S. Navy which reached a high water mark of just under 600 ships in the mid-1980s. Today, the U.S. Navy fleet is less than 300 ships and headed lower.

Ship design and shipbuilding technology evolves from commercial not naval shipbuilding. For perspective, there are some 2,000 new commercial ships built in the world every year; at best there might be 100 navy ships built each year around the world.

Commercial shipbuilding brings tremendous benefits to the Navy and the nation:

- Allows shipbuilding and ship design technology benchmarking against the best in the world; not just the best in the U.S.

- Ensures access to the best of international marine technology and competitive prices for commercial marine systems that are found aboard many Navy ships

- Commercial volume allows for the continuous process improvement in construction technique

- Preserves and enhances the employment skill level necessary to build ships

- Helps attract a necessary new generation of engineers into shipbuilding

- Spreads yard overhead costs across a wider base making Navy ships less expensive

- Fills in the valleys between Navy programs

U.S. yards are now in the unenviable situation where Navy shipbuilding has declined dramatically and we have little or no commercial business to fill the void.

Under the right circumstances, U.S. Shipbuilders can produce affordable commercial ships for the Jones Act domestic trade at a profit in this country and the Navy would be a direct beneficiary. A line of commercial ships of sufficient numbers, of a proven design, and totally repeatable from one customer to the next, could lower the overhead costs on Navy programs and provide the stable and predictable production volumes that would drive improved efficiency and continued investment. This would result in a more robust, modern, U.S. flag fleet, but, equally important, more affordable Navy ships, and a stable industrial base. The Navy will always need a balanced fleet across its multiple mission areas from submarines, to surface combatants, to auxiliary and support ships. We need to do all we can to fund and preserve an industrial base that can efficiently and cost-effectively produce ships for each mission area.

Navy Shipbuilding Plan – Naval Auxiliaries

As a final observation, I would offer that in the low rate production environment that now characterizes U.S. shipbuilding, program sequencing is an extremely important consideration. When NASSCO designed the new TOTE ships, it had not designed a new Navy or commercial ship in over five years. NASSCO essentially rebuilt its engineering and design capabilities, both software and people, for the

TOTE and BP commercial programs. Such gaps in new ship program starts are very expensive, create significant inefficiencies, and result in long cycle times from contract to ship delivery. I fear we will see similar discontinuities in the current Navy auxiliary ship programs as the design development gap between T-AKE and the Navy's next planned program the T-AOEX and the MPF(F) is now over six years with the potential to increase even more as a result of low shipbuilding budgets. I would strongly urge the Navy to fully consider program continuity and its many implications when making its programmatic decisions.

Summary

State of the Industrial Base

As we have shown in the past, our shipyards can adjust to the market place by right-sizing our organizations to meet market demands. But, I believe today is different. Today, the long term implications of any further contraction of the capabilities of your major U.S. shipyards could seriously harm national security as you address our future threats. The issue for you, today's political leadership, is whether you are comfortable with the state of our shipbuilding industry from a national security perspective.

In recent testimony, the CNO has illustrated the fact that over the last 40 years, ship unit costs have grown, and in some cases have grown dramatically. It cannot be disputed that there has been cost growth in naval warships, and that industry and the Navy must be unrelenting in their efforts to reduce the cost of these ships. What cannot be overlooked, are key factors beyond the shipbuilders' and industry suppliers' control that have contributed to this growth. Most specifically, today's naval warships bring tremendous advancements in capability over those of forty years ago; advancements in weapons, in electronics, in stealth, in survivability, and in reliability and maintainability.

It is unlikely that the Navy's ship procurement plans will return to the high volume levels maintained during the Cold War. Given the likelihood of limited production, steps must be taken to help reduce the cost of naval warships.

Predictability is fundamental to the functioning of any successful business; shipbuilding is no exception. Key business decisions related to facility modernizations and the retention and enrichment of critical shipbuilding skills must be made years in advance of when they are required and must be predicated on reliable workload forecasts to justify such expenditures. Absent a predictable plan, the industrial base can not fully leverage its capabilities and competencies to provide the Navy with the most affordable ships possible.

Alternative financing approaches may give the Navy enough budgetary flexibility to sustain their procurement strategy and support their national defense obligations. The appropriate financing approach will likely vary from program to program, but advance appropriations, multi-year procurements,

incremental procurement, split funding and lead ship R&D procurements all potentially offer budget flexibility to the Navy, thereby creating the opportunity for industry to reliably predict volume, and thus provide more cost fidelity for future work. It is important to recognize, however, that this is not a panacea for the Navy. It will not buy more ships. What it will provide is an added level of stability that is so critical the industrial base.

We need to look closely at our policies and plans for accomplishing maintenance and modernization work. In a low rate production environment this work can play a much more important role in preserving our production capabilities. By performing more of this work at the ship construction yards, we will strengthen these yards by sustaining critical shipbuilding skills and capabilities. In addition, we will reduce the cost of new construction by utilizing existing capacity and facilities; and, by spreading overhead costs.

I also believe we need to discuss ideas to revitalize commercial shipbuilding in the U.S. We need a U.S. merchant marine built and manned by Americans and we need to define the ship types necessary to supplement our national defense needs. Working with the Congress, we need to explore the universe of market incentives necessary to encourage the private sector to build and keep these vessels in operation.

Toward this end, Congress and industry must do a little thinking "outside of the box". For example, can shipbuilding have a role in reducing the pressures on our nation's highway infrastructure? The amount of freight transported on our highways is staggering. Perhaps Congress, working with Government agencies, can devise appropriate legislation and incentives which would result in a more vibrant merchant marine – a fleet of commercial cargo carriers to service the domestic trade. The benefits would be tremendous. Such revitalization of commercial shipbuilding would reduce the cost of Navy platforms if for no other reason than the increased economies of scale from additional shipbuilding volume. Revitalization of commercial shipbuilding would result in development of commercial "best practices," some of which could be applied to military shipbuilding and thereby also reduce cost to DOD. And revitalization of commercial shipbuilding by such a manner would also produce a ready-reserve capability available to DOD in case of national emergency.

I mentioned Congress and DOD developing legislation and incentives to facilitate this concept. Consider that the concept outlined provides significant benefit to DOD. Why can't DOD, therefore, fund development of a non shipyard-specific design for such a cargo fleet, and then make that design available to industry for commercial exploitation? This is not so different an investment philosophy that Congress and the Navy currently provide to support the National Shipbuilding Research Program, it just adds a real tangible result to that strategy. This kind of thinking is what we need to do more of if we are truly going to strengthen our industrial base.

The Navy, in cooperation with the shipbuilding industrial base, must make use of all available technical/industrial levers to maximize the capabilities of the industrial base to provide the Fleet with the right mix of the capable, affordable ships needed to meet our National Defense needs. Industry stands ready to support the Navy customer and invest in the future, but a clear, predictable plan must be defined; then the Navy-industry partnership must work to the plan.

The goal of General Dynamics Marine Systems is to be the best at what we do, whether that is submarines, surface combatants, naval auxiliaries or commercial ships. Toward this end, the General Dynamics management team remains focused on defining and operating sophisticated, specialized facilities that have been properly sized for the prevailing, customer-defined, ship production rate. The recent benchmarking study conducted by the Deputy Undersecretary of Defense for Industrial Policy confirmed that we have met that goal - facility resources, critical skills and competencies are continually being tuned to suit prevailing, as well as predicted, market demands. Unanticipated or uncontrollable changes in volume have a significant impact on the cost of an hour's worth of labor. While facilities can be readily re-tooled or taken off-line, this country's highly-skilled shipbuilders (engineers, designers and craftsmen) are a national treasure; they cannot simply be placed in "reserve" status. GD shipyards have avoided a reckless pursuit of added capacity; instead they have worked to right-size in order to be in the best position to meet the challenges of tomorrow's Navy. GD shipyards are meeting commitments and expectations. In return, we need predictability and an opportunity for a reasonable rate of return on our investments. When such conditions are not met, businesses close. Once a major naval shipbuilding yard closes it never successfully reopens; once the skilled workforce is lost, reconstitution of this national treasure is too costly and simply not feasible.